

What is claimed is:

1. A magnetic tape comprising:

a back coating layer containing a carbon black;

a support;

5 a non-magnetic layer containing a non-magnetic powder and
a binder, which is substantially non-magnetic; and

a magnetic layer containing a ferromagnetic powder and
a binder, in this order,

wherein the magnetic tape is a magnetic tape for recording
10 a signal with a 10 to 100 Mbit/cm² surface recording density;
the magnetic tape has a temperature expansion coefficient in
a width direction thereof of a 0.0015%/°C or less, a humidity
expansion coefficient of 0.0015%/RH or less, an offset yield
strength in a longitudinal direction thereof of 10N or more,
15 a rupture strength of 30 N or more; and the support has a center
plane average roughness on a coating surface side of the magnetic
layer of 1.0 nm or less, a center plane average roughness on
a coating surface side of the back coating layer of 3.0 to 9.0
nm, and projections having a 273 nm or more height existing on
20 the coating surface side of the magnetic layer of 10 pieces/100
cm² or less.

2. The magnetic tape according to claim 1, wherein the
support comprises a polyethylene naphthalate.

3. The magnetic tape according to claim 1, wherein the support has a center plane average roughness on a coating surface side of the back coating layer of 5.0 nm or less.

5 4. The magnetic tape according to claim 1, wherein the support projections having a 273 nm or more height existing on the coating surface side of the magnetic layer of 5 pieces/100 cm² or less.

10 5. The magnetic tape according to claim 1, which has a width of 5 to 13 mm.

6. The magnetic tape according to claim 1, which has an entire thickness of 5 to 10 μm.

15 7. The magnetic tape according to claim 1, wherein the support has a Young's modulus in a lateral direction thereof of 600 kg/mm² (5,880 MPa).

20 8. The magnetic tape according to claim 1, wherein the support has a Young's modulus in a longitudinal direction thereof of 750 kg/mm² (7,350 MPa).

9. The magnetic tape according to claim 1, which has a
25 Young's modulus in a lateral direction thereof of 650 kg/mm²

(6,370 MPa).

10. The magnetic tape according to claim 1, which has
a Young's modulus in a longitudinal direction thereof of 950
5 kg/mm² (9,310 MPa).

11. The magnetic tape according to claim 1, wherein the
magnetic layer has a surface roughness Ra of 0.1 to 4 nm.

10 12. The magnetic tape according to claim 1, wherein the
back coating layer has a surface roughness Ra of 0.0030 to 0.060
μm.